BJC-85
BJC-85W

SERVICE MANUAL

Canon

BJC-85
BJ M70

REFERENCE MANUAL

Canon

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1. PRODUCT OUTLINE

The BJ M70 and the BJC-85 are portable, color BJ printers targeting the personal use market. As successive models of the BJC-80/80v, the following functions have been added, the ease of connection has been improved, and the functions as a portable space-saving printer has been strengthened.

(1) The high-speed IrDA (Ver.1.1) enables the printer to attain print speed comparable to that of the Centronics interface.
(2) Direct printing from digital cameras by the new standards of IrTran-P.
(3) Support of the USB I/F function.
(4) Photo printing function is added.

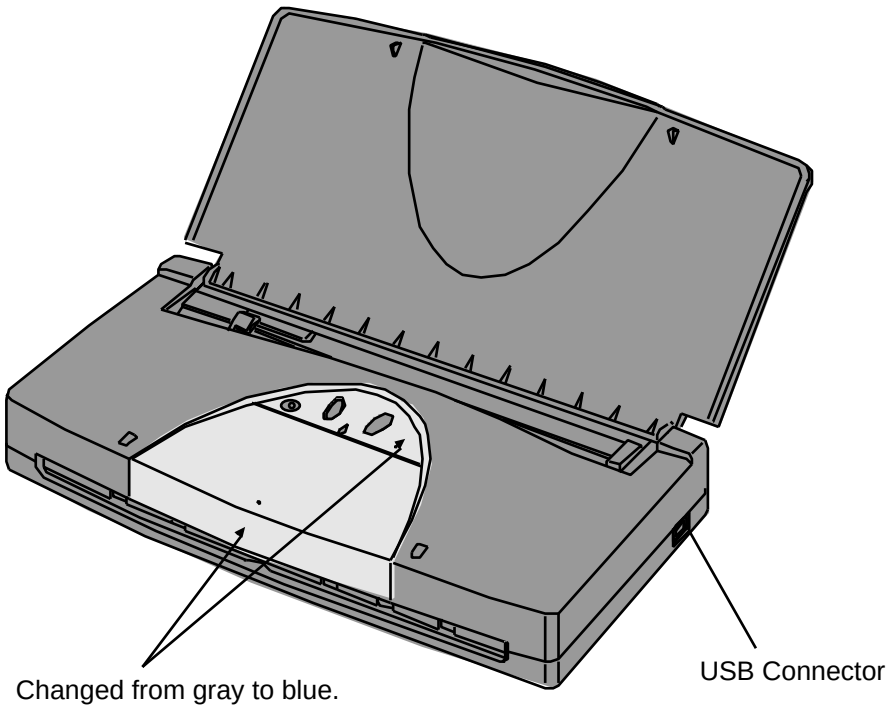
2. CHANGES FROM THE BJC-80/80v

1) New adoption of the photo cartridge (Photo printing function is added.)
2) The IrDA version upgrade from Ver. 1.0 to 1.1 has enabled faster transmission.
3) New adoption of IrTranP (Direct printing from digital cameras, enabled only in BJ M70).
4) New adoption of USB I/F
5) One emulation (BJC-85: LQ mode / BJ M70: BJ mode)
6) Button reset of the ink low warning is added.
7) Various specifications / Circuit diagram
8) Special tool (spur cleaner) is added.

3. EXTERNAL APPEARANCE

The BJ M70 and the BJC-85 have the same appearance as the BJC-80/80v, except for the following:

(1) The USB I/F connector has been added to the right side of the printer.
(2) The color of the panel cover and inner cover has been changed from gray to blue.



4. SPECIFICATIONS

4-1. PRIINTER SPECIFICATIONS

Type	Portable serial color bubble jet printer
Paper feeding method	Auto sheet feed
Printing speed	Burst HS: 434cps HQ: 346cps (when using the BC-10) Throughput: BC-10 New monochrome pattern (E) 5 ppm(HS) 3.9 ppm(Standard) New monochrome pattern (J) 5 ppm(HS) 4.3 ppm(Standard) BC-11e New color pattern (E) 2 ppm(HS) 1.6 ppm(Standard) New color pattern (J) 2 ppm(HS) 1.7 ppm(Standard) BC-12e A4 full address 1.0ppm (HQ)
Printing direction	Unidirectional (automatically selected according to the print data)
Max. Print Width	203 mm
Line feed pitch	136 ms/line (128" /360" line feed)
Built-in print control mode	LQ mode: BJC-85 only BJ mode: BJ M70 only Native mode BJL command
Detection functions	Presence of paper: Available Presence of BJ cartridge: Available Waste ink amount: Available Paper width: Not available Distinction of BJ cartridge: Available Ink low: Available (by using the dot-count)
Noise	Sound pressure level: conforms to ISO9296 Approx. 45 dB (A) or less during operation (HQ/HS mode)
Environmental requirements	During operation Temperature 5°C to 35°C (41°F to 95°F) Humidity 10%RH to 90%RH (no condensation) Non operation Temperature 0°C to 35°C (32°F to 95°F) Humidity 5%RH to 95%RH (no condensation)
Power supply	Input voltage/Frequency: AC100 V, 50/60 Hz AC120 V, 60 Hz AC230 V, 50 Hz AC240 V, 50 Hz Power consumption Printing status Standby status Soft power off Max. 30 W 3 W 2 W
External dimensions	300 mm (W) x 157.6 mm (D) x 57 mm (H)
Weight	Approx. 1.4 Kg (including BJ cartridge)

4-2. INTERFACE SPECIFICATIONS

The interface specifications of this printer is shown below.

1) Bidirectional Centronics Interface (IEEE1284 compatible)
2) Infrared Interface
   - IrDA Interface Ver. 1.1 / IrTranP
   - ASK Interface
3) USB Interface

<Difference from the BJC-80/80v>

1) The specified version of IrDA is changed from Ver. 1.0 to 1.1.
2) IrTranP compliant.
3) USB interface compliant.

IrDA Ver. 1.1 and USB I/F compliancy for preinstalled Windows 98 PCs.
Windows 95 PCs comply with IrDA Ver. 1.0.

The specifications of IrDA Ver. 1.1 and USB I/F are explained below. See the BJC-80/80v Service Manual for details regarding the bidirectional interface/ASK interface.

4-2-1. IrDA Interface

1) Interface
   IrDA Version 1.1 compatible

2) Optical specifications

	Light generation	
	Wavelength:	0.85 to 0.90 µm
	Intensity:	100 to 500 m W/Sr
	Light angle:	±15° (along optical axis)
	Light interception	
	Wavelength:	0.85 to 0.90 µm
	Intensity:	4µ W/cm^2 to 500m W/cm^2 10µ W/cm^2 to 500m W/cm^2 (when the communication speed is more than 0.576 MHz.)
	Light angle:	Max. ±15° (along optical axis)
3)	Transfer speed	9600/19200/38400/57600/115.2k/576k/1.152M/4M bps
4)	Communication method	Half duplex, start/stop system (bidirectional): when the transfer speed is less than 115.2kbps Half duplex, frame synchronization system (bidirectional): when the transfer speed is more than 0.576Mbps
5)	Communication distance	0 to 1m: when the transfer speed is less than 115.2kbps 0 to 0.8m: when the transfer speed is more than 0.576Mbps

6) Maximum received data size: 2048 byte/packet

7) Modulation method: 3/16 RZI (Return to Zero Invert):
when the transfer speed is less than 115.2kbps
1/4 RZI (Return to Zero Invert):
when the transfer speed is 0.576Mbps and 1.152Mbps
4 PPM (Pulse Position Modulation):
when the transfer speed is 4Mbps

4-2-2. USB Interface

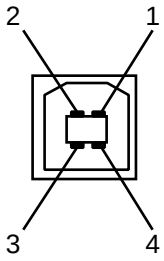
<Specifications>

1) Device structure: Self-powered device

2) Data transfer method: Half duplex serial interface
Universal Serial Bus Specification Revision 1.0 compatible
Universal Serial Bus Device Class Definition for printing Device Version 1.0 compatible
Signal rate: 12Mbps (full speed)
Transfer type: Control transfer/Bulk transfer

3) Input/output circuit

No.	Signal name	
1	Vcc	
2	-Data	Data signal line
3	+Data	Data signal line
4	GND	



Series B

<Signal level>
Vcc: "H" level input voltage: +2.0V to +5.5V
"L" level input voltage: +0.0V to +0.8V
-Data, +Data: Differential input sensitivity
"H" level input voltage: +2.8V to +3.6V
"L" level input voltage: +0.0V to +0.3V

4) Interface cable: Material: AWG No.28 or larger
Full speed device cable (with twisted-pair shield)
Less than 5 mm

5) Interface connector: Printer-side: USB standard, Series B receptacle
Cable-side: USB standard, Series B plug

<Technical explanation>

USB is a serial interface which connects up to 127 peripheral devices to a host computer, and transmits data at a high-speed rate of 12Mbps. Hot plugging, in which connecting/disconnecting devices while the host or the printer is in use, is supported. Each device is connected to a hub's port, where each port's detection/disconnection status is returned to the host.

Data transfer

The data transfer in USB is executed in terms of the transfer unit called a frame, a time frame of approximately 1ms, into which the data is divided. Data is transferred by piling up these frames.

All packets begin with a SYNC (synchronizing) field to synchronize with the local clock, and are separated with an EOP (End of Packet) field.

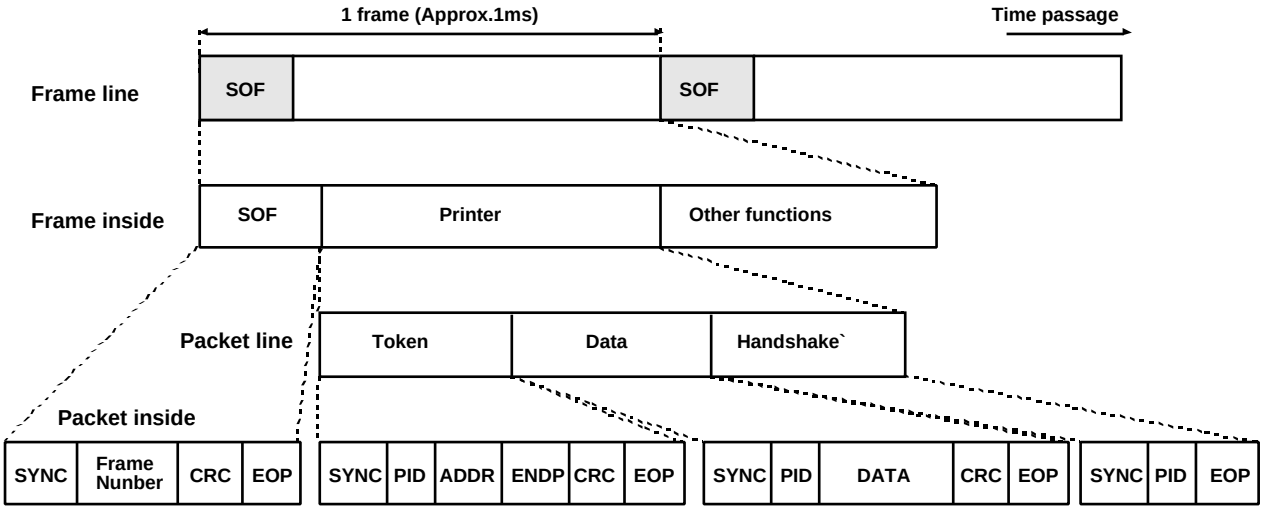
Frame lines begin with an SOF (Start of Frame) packet. An SOF is composed of a PID (Packet Identification Field) that represents the type of the packet and the direction, frame number, and a CRC (Cyclic Redundancy Check) used for error-check.

Inside a frame is a packet line containing a token packet, data packet and a handshake packet, which indicates the status of the flow control.

A token packet is composed of a PID, an address field which can specify up to 128 addresses, an ENDP (endpoint) field, and a CRC.

Inside a data packet are a PID, data field, CRC, and EOP.

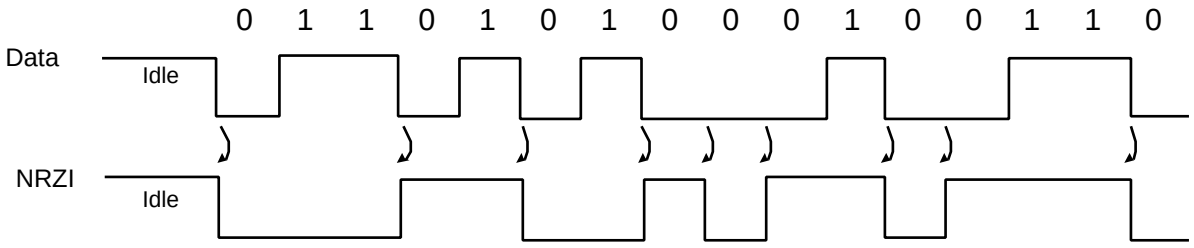
Only a PID is present inside the handshake packet.



Encoding/Decoding the Data

In USB, data transfer lines are ultimately encoded with NRZI (Non Return to Zero Invert) method. When the original data bit is 0, sent data bits are inverted; when the original data bit is 1, the value is retained.

However, if the level of the transferred data remain unchanged for a certain period of time, the receiving side may not be able to synchronize with the data sample position, which will result in data bits being out of phase. This is prevented by a method called bit stuffing; when data bit 1 is repeated 6 times, one 0 bit is added to the original data before encoding with NRZI.



4-3. PAPER SPECIFICATIONS

Plain paper (Weight: 64 to 90g / m^2)
Government postcard (Weight: 90g / m^2, Thickness: 0.23 mm)
Coated paper (Canon coated paper LC-301, A4/LTR)
High resolution paper (Canon high resolution paper HR-101, A4/LTR)
Glossy paper (Canon glossy paper GP-301, A4/LTR)
Transparency film (Canon transparency film CF-102, A4/LTR)
BPF (Canon back print film BF-102, A4/LTR)
Glossy film (Canon glossy film HG-101, A4/LTR)
T-shirt transfer (Canon T-shirt transfer TR-201, A4/LTR)
Fabric sheet (Canon fabric sheet FS-101, A4/LTR)
Glossy postcard (Canon glossy postcard KH-201)
Photo glossy postcard (Canon photo glossy postcard FM-101)
Envelope (Size 4, size 6, COM #10, DL)
Note: Printing on fanfold paper and labels is not supported.

Type	Paper	Size	Remarks
Plain paper*1	PB (SK/DK)	A4, B5, A5	Suggested paper
	Kangas	A4	
	Neusiedler	A4	See *1
	Boise Cascade	LTR, LGL	
	XX4024(75g/m^2)	LTR, LGL	
	XX4024(95g/m^2)	LTR, LGL	
	Fox River Bond	LTR	
Color BJ plain paper	LC-301	A4, LTR	See *1
High resolution paper*2	HR-101	A4, LTR	See *2
Glossy paper*2	GP-301	A4, LTR	See *2
Transparency film*2	CF-102	A4, LTR	See *2, Note 1)&2)
BPF*3	BF-102	A4, LTR	See *3, Note 2)
Glossy film*2	HG-101	A4, LTR	See *2, Note 2
T-shirt transfer	TR-201	A4, LTR	See *3
Fabric sheet*3	FS-101	A4, LTR	See *3, Note 1)
Government postcard*2	----------	100 x 148*	See *2
Glossy postcard*2	KH-201	100 x 148*	See *2
Photo glossy postcard	FM-101	215.9 x 119.6*	See *3
Envelope*4	Size 4	235 x 105*	See *4
	Size 6	190 x 98*	
	COM #10	241 x 106*	
	DL	220 x 110*	
Thick paper	91 to 105g / m^2		

*: Unit: mm
*1:Stackable up to 3 mm (Approx. 30 sheets). For legal size paper, feeds single sheet.
*2: Stackable up to 10 sheets *3: Single paper feeding *4: Stackable up to 5 sheets
Note 1): A plain sheet of paper should be set under the back print film, fabric sheet, and T-shirt transfer.
Note 2) Transparency film, back print film, and Glossy film are usable when the humidity is 70 % or less.

4-4. PHOTO BJ CARTRIDGE SPECIFICATIONS

Photo cartridge BC-12e

BJ cartridge BC-12e:	Ink cartridge replaceable type of color BJ cartridge (drop modulation adopted)
Ink cartridge BCI-12Bk:	Black (64 nozzles)
Ink cartridge BCI-12Color:	Yellow, Magenta, Cyan (24 nozzles x 3)

No. of pages printed	Approx. 20 pages : reference value (in the HR-Fine mode, 7.5% duty pattern per color (A4) : calculated value)
Weight	Approx. 29 g (including both ink cartridges)
Print speed	Approx. 0.1 pp : reference value (A4 full address printing pattern)
Nozzle check pattern	Same as the BC-11e

HR-Fine mode

Carriage motion:	3 pass
Printing nozzle:	8 nozzle
Resolution:	360 dpi
Carriage driving frequency:	5.00 kHz

Photo print mode can be used to obtain high level gradation print quality when using the Photo BJ cartridge. These cartridges contain light density ink which achieves a rich gradation and reduced graininess by printing several times over the same dot.
The printer driver divides the pixel data into a maximum of 4-values (not printed, print 1 dot, print 2 dots and print 3 dots) enabling each pixel to be printed in up to 4 gradations. The printer therefore makes three passes using a maximum of 150% more ink than usual. This Photo cartridge adopts drop modulation, decreasing granularity of the light density parts by efficiently ejecting large and small ink droplets.

Head ID

Head		Carriage ribbon cable contact part pin No. / Signal name		
		11/ID0	12/ID1	13/HCONT
	BC-10	L	L	H
	BC-11e	H	L	L
	BC-12e	H	H	L
	No head installation error	H	H	—

The printer has no detection function of the ink cartridge type, and for the BC-11e and BC-12e, the ink cartridges to be installed are not incompatible, therefore, the following mistaken installation may occur. In case the BCI-12 Bk/Color are installed in the print head of the BC-11e, as the printer recognizes that the color cartridge (BC-11e) has been installed in spite of light density photo ink cartridge installation, low density imaging is produced. In case of the installation of the BCI-11 Bk/Color in the print head of the BC-12e, in reverse, high density colored imaging is produced.

5. OPERATION

5-1. FUNCTION SETTING

Default setting

The default setting can be set by button operation when the power is turned on. When the printer is turned on, hold down the POWER button until the beeper sounds the specified number of times for the desired function setting, and release the POWER button to set.

Function Setting

Mode	Beeper	Remark
Table 1	7 times	Factory default setting
Table 2	8 times	
Table 3	9 times	
Table 4	10 times	
Table 5	11 times	

<Difference from the BJC-80>
BJC-85

1) No setting regarding the BJ mode
2) The setting to enable/disable the ink low warning is added.
3) The setting of Euro font is added.

	Table 1	Table 2	Table 3	Table 4	Table 5
Print mode	HQ	HQ	HQ	HQ	HQ
Left margin	LTR	LTR	A4	A4	A4
Text scale mode	Disable	Disable	Disable	Disable	Disable
Paper feed position	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm
Smoothing	Disable	Disable	Disable	Disable	Disable
Reduction	1/1	1/1	1/1	1/1	1/1
Automatic power off	Disable	Disable	Disable	Disable	Disable
Font	Roman	Roman	Roman	Roman	Roman
Font lock	Disable	Disable	Disable	Disable	Disable
Input/download buffer	25 kB/0 kB	25 kB/0 kB	25 kB/0 kB	25 kB/0 kB	25 kB/0 kB
Automatic line feed	CR	CR	CR	CR	CR
International character set	USA	USA	USA	USA	USA
Character set	Italics	Italics	Italics	Italics	Graphics
Code page	437	437	437	437	858
Ink low warning	Disable	Enable	Disable	Disable	Disable

When the printer is turned on, hold down the POWER button until the beeper sounds 12 times to change "Code Page" in the following table to "858," "Character Set" to"Graphics." Other items will not be changed.

<Difference from the BJC-80v>

BJ M70

1) No setting regarding the LQ mode

2) The setting to enable/disable the ink low warning is added.

	Table 1	Table 2	Table 3	Table 4	Table 5
Operation mode change	BJ	BJ			
Print mode	HQ	HQ			
Automatic power off	Disable	Disable			
Smoothing	Disable	Disable			
Remaining ink	Disable	Enable	Same as	Same as	Same as
Reduction	1/1	1/1	Table 1	Table 1	Table 1
BJ Paper feed position	8.5 mm	8.5 mm			
BJ receive buffer	23 kB	23 kB			
BJ ANK character quality	Normal	Normal			
BJ ANK character set	Katakana	Katakana			
BJ CR function (+LF)	CR only	CR only			
BJ ANK international character	Japan	Japan			

5-2. ERROR INDICATIONS

<Difference from the BJC-80/80v>

	Beeper	
	BJC-80/80v	**BJC-85/BJ M70**
Waste ink warning	4 times	5 times
Low battery warning	3 times	4 times
Ink low warning	Once	Twice
Cartridge replacement compulsory completion warning	Twice	3 times
Diode sensor error	9 times	------*1

*1: Eliminated

<BJC-85/BJ M70 error indications>

Error condition	**Error LED**	**Power LED**	**Beeper**
[Recoverable by customers]	(Orange)	(Green)	
Paper pick-up error	Lights	Lights	Once
Paper delivery error	Lights	Lights	Twice
BJ cartridge check	Lights	Lights	3 times
Cartridge mis-match	Lights	Lights	4 times
Ink low warning*1	Blinks	Lights	Twice
Cartridge replacement compulsory completion warning	Blinks	Lights	3 times
Low battery warning	Blinks	Lights	4 times
Waste ink warning	Blinks	Lights	5 times
Low battery error (with battery)	Blinks	Blinks	Long, then short
[Unrecoverable by customers]			
ROM error	Blinks	Blinks	Once
RAM error	Blinks	Blinks	Twice
No head installation error	Blinks	Blinks	3 times
HP sensor error	Blinks	Blinks	4 times
Waste ink full error	Blinks	Blinks	5 times
Internal temperature error	Blinks	Blinks	6 times
Print position detection error	Blinks	Blinks	7 times
Abnormal temperature rise error	Blinks	Blinks	8 times
EEPROM error	Blinks	Blinks	11 times
Low battery error (with AC adapter)	Blinks	Blinks	Long, then short

*1: Ink low warning is enabled only when the ink low warning selection is set to on.

5-3. INK LOW WARNING RESET BY BUTTON OPERATION

Ink low warning

This printer detects the remaining ink level by counting the number of ejected ink dots in the same way as the BJC-80/80v. When the setting of the ink low warning is enabled, and the remaining ink gets low, the beeper sounds twice, and the ERROR LED blinks. Pressing the cartridge replacement button will sound the beeper and move the carriage to the center, and the ERROR LED indicates the ink cartridge for which the remaining ink is low as shown below.

Blinks once: when the remaining ink of the BCI-10 / BCI-11Bk / BCI-12Bk is little

Blinks twice: when the remaining ink of the BCI-11Color / BCI-12Color is little

Blinks 3 times: when the remaining ink of the BCI-11 BK & Color / BCI-12 BK & Color is little

The ink low warning reset function by button operation is added to this printer. The button operation procedures are shown below. (The ink low warning of the BJC-80/80v can be reset from the host computer only.)

Operation

1) Turn on the printer.

2) Press the cartridge replacement button to move the carriage to the center.
   If the carriage was moved to the center by signals from the PC, the reset operation by the cartridge replacement button is not possible.

3) Make sure that the proper cartridge is installed in the carriage. If not, install the proper one. (The ink dot counter reset is effective only to the ink cartridge type installed in the carriage.)

4) Press and hold the *RESUME* button for the number of beeps corresponding to the warned ink type to select the ink type for which the dot counter is to be reset, and release the *RESUME* button. The number of beeper sounds is as follows:

Once:	The dot counter of the BCI-10/BCI-11Bk/BCI-12Bk is reset.
Twice:	The dot counter of the BCI-11Color/BCI-12 Color is reset.
3 times:	The dot counter of the BCI-11Bk&Color/BCI-12Bk&Color is reset.
4 times:	The selected ink type is canceled.

5) Press the cartridge replacement button.
   The ink dot counter selected in the procedure 4) and the ink low warning are reset, and at the same time, the carriage returns to the home position.

5-4. DIRECT PRINTING FUNCTION OF THE IMAGE FROM DIGITAL CAMERAS (BJ M70 only)

<Difference from the BJC-80/80v>
The new adoption of IrTranP has enabled the printing of data directly sent from digital cameras compliant to IrTranP standards, not through the host computer, but via IrDA communication.

Specifications

Data communication form:	IrTranP standards compatible
Input image size:	640 x 460 pixels
Input image capacity:	128 Kbyte or less
Output image size:	Landscape: 90 x 68 mm
	Portrait: 77 x 103 mm
	Seal printing: 19 x 26 mm x 16 images
Paper size:	Postcard

Operation

<Image printing>
After receiving the data, the image data is output by pressing the *RESUME* button, and releasing before the beeper sounds. This is not effective when an error has occurred or paper is fed.

<Reprinting>
The image data is also maintained in the memory after printing, and will not be abandoned until new image data is received from the digital camera, or print data is input from the host computer. Reprinting of data is possible by pressing the *RESUME* button (and releasing before the beeper sounds).

<Printing cancellation>
During the printing of image data, printing is cancelled by pressing the *RESUME* button until the beeper sounds once, then releasing. In this case paper is delivered. The remaining data halfway through printing is abandoned. (As the image data has been maintained, it is possible to reprint the data, without resending the data from the digital camera.)

<Printing position definition>
To select the printing position, press the POWER button and cartridge replacement button simultaneously when the power is on, and release the buttons after the beeper sounds the number of times applicable to the printing position to be selected. This setting returns to the default (Landscape) by powering off. The number of beeper sounds is as follows:

Once:	Portrait
Twice:	16-image seal printing
3 times:	Photo glossy card landscape
4 times:	Photo glossy card portrait
5 times:	Setting completed. (The power is normally turned on.)

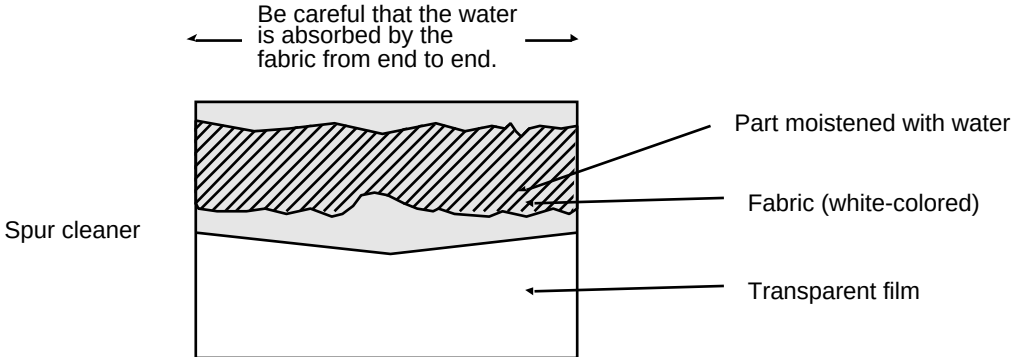
6. SPECIAL TOOLS

Clean spurs by using the spur cleaner in case spur marks are left on the print images.

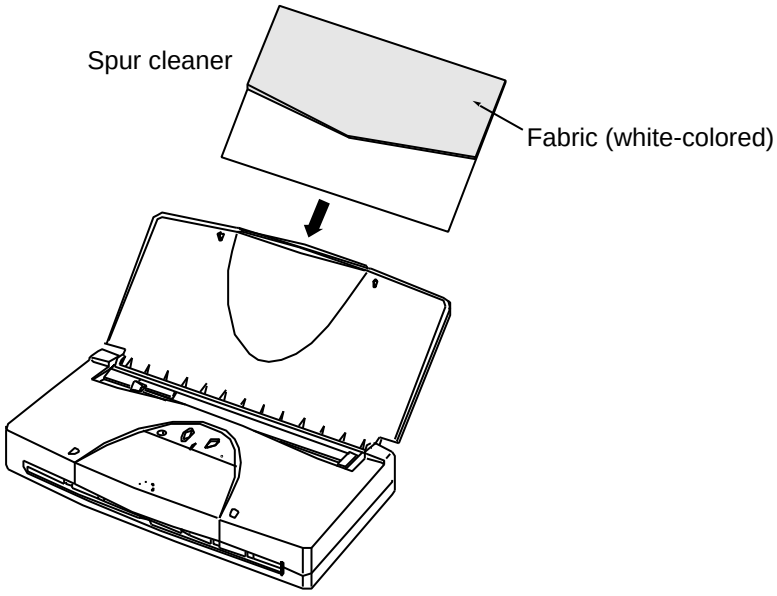
Special tool (part number)	**Remarks**
Spur cleaner (QY9-0055-000)	For cleaning spurs

Usage

1) Moisten the fabric part of the spur cleaner with approx. 5 cc of water.
   Moisten the fabric with the water, as shown below, so that the fabric absorbs the water from end to end.
   Be careful not to moisten the fabric with too much water. In case too much water is used, there is the possibility that water will be wrung from the spur cleaner when passing through the paper feed roller, spread inside the printer, and cause failure.


Be careful that the water is absorbed by the fabric from end to end.
Part moistened with water
Fabric (white-colored)
Spur cleaner
Transparent film

2) Turn on the power of the printer. Remove the paper from the ASF to set the spur cleaner with the fabric-affixed part of the cleaner face-up and to the top.
3) Press the *RESUME* button, and release it after the beeper sounds once. The spur cleaner is fed and stops at the print start position.
4) Press the *RESUME* button again, and release it after the beeper sounds once. The spur cleaner is delivered. Repeat procedures 3) to 4) approx. 5 times in case of heavy soiling.
5) Set a single sheet of paper to the ASF to repeat procedures 3) and 4). (To remove the moisture remaining in the paper feeding path.)

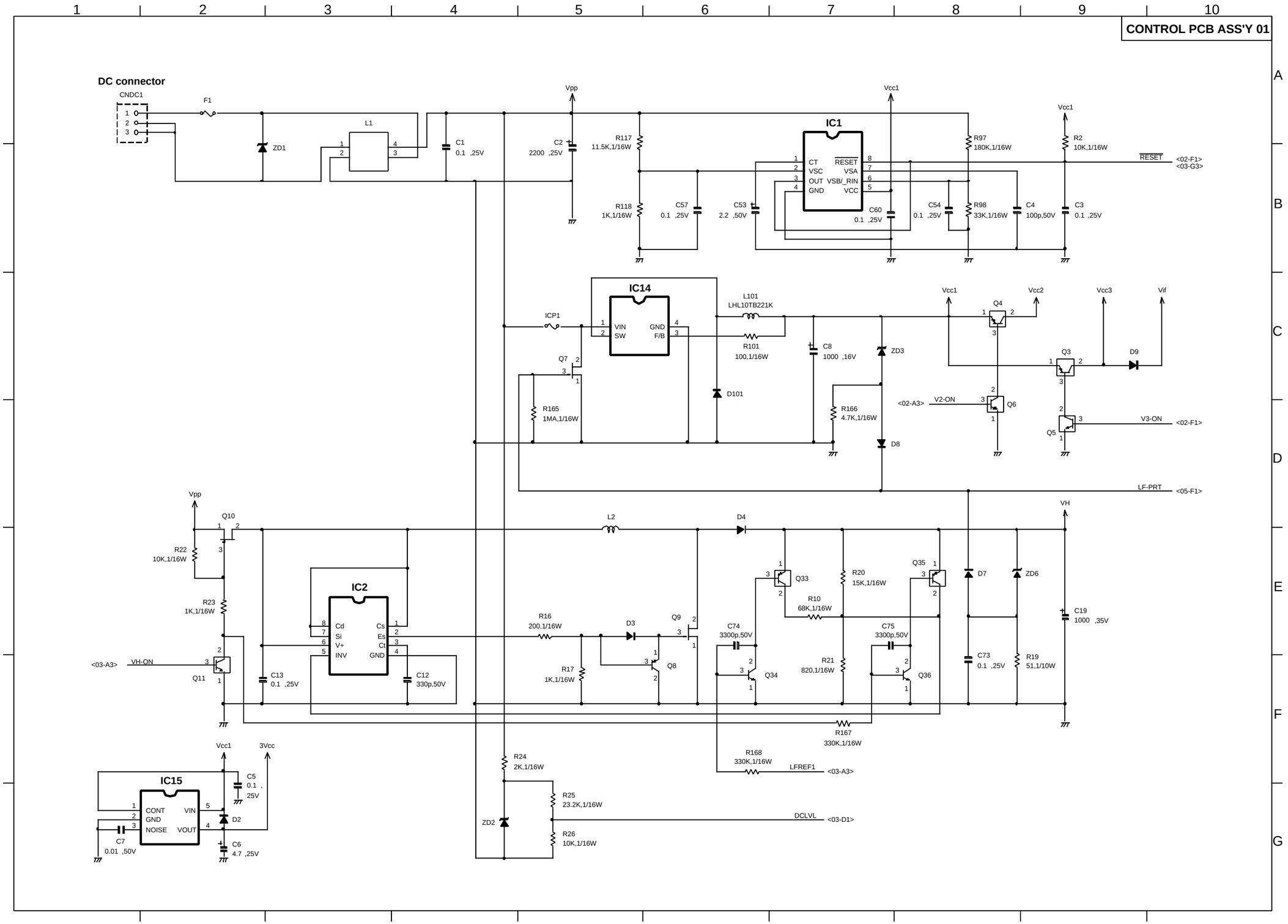


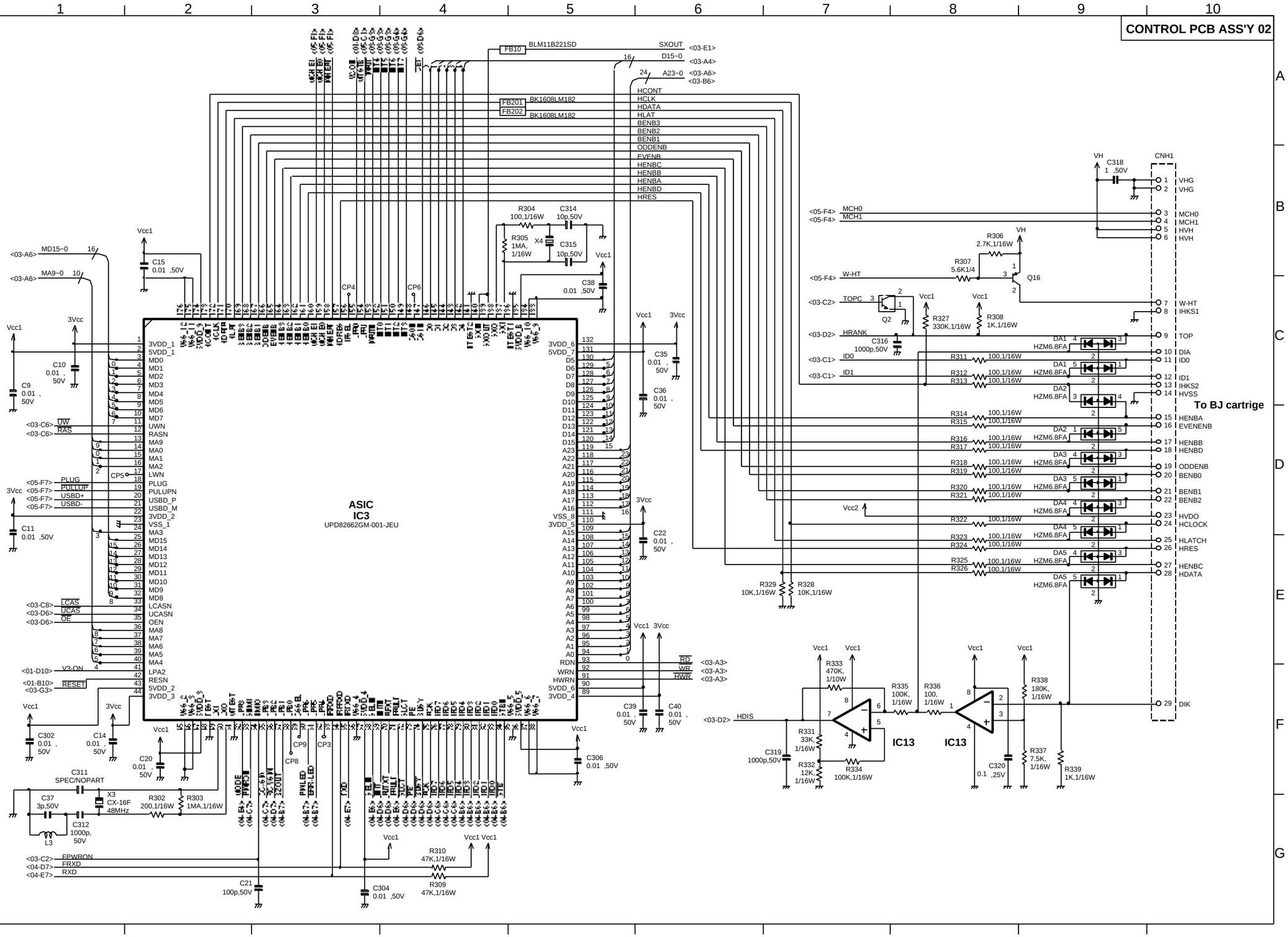
7. PARTS LIST

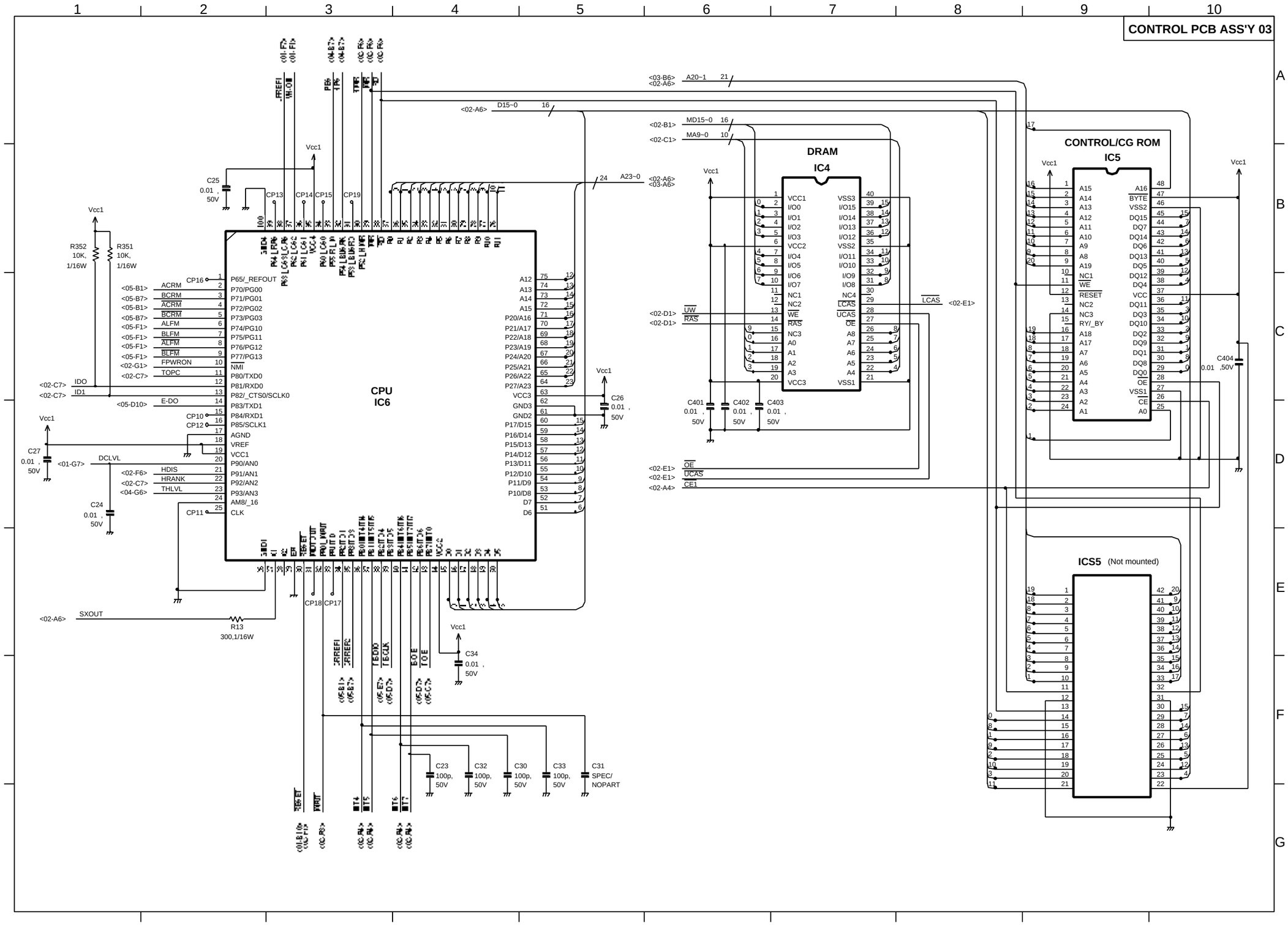
	BJC-85	BJ M70
COVER, INNER	QB1-4449	QB1-4450
COVER, PANEL	QB1-4451	QB1-4452
CONTROL PCB ASS'Y	QG2-3096	QG2-3097
CHASSIS PLATEN UNIT	QG5-1476	QG5-1481
FLASH-ROM	QH8-0258	QH8-0259

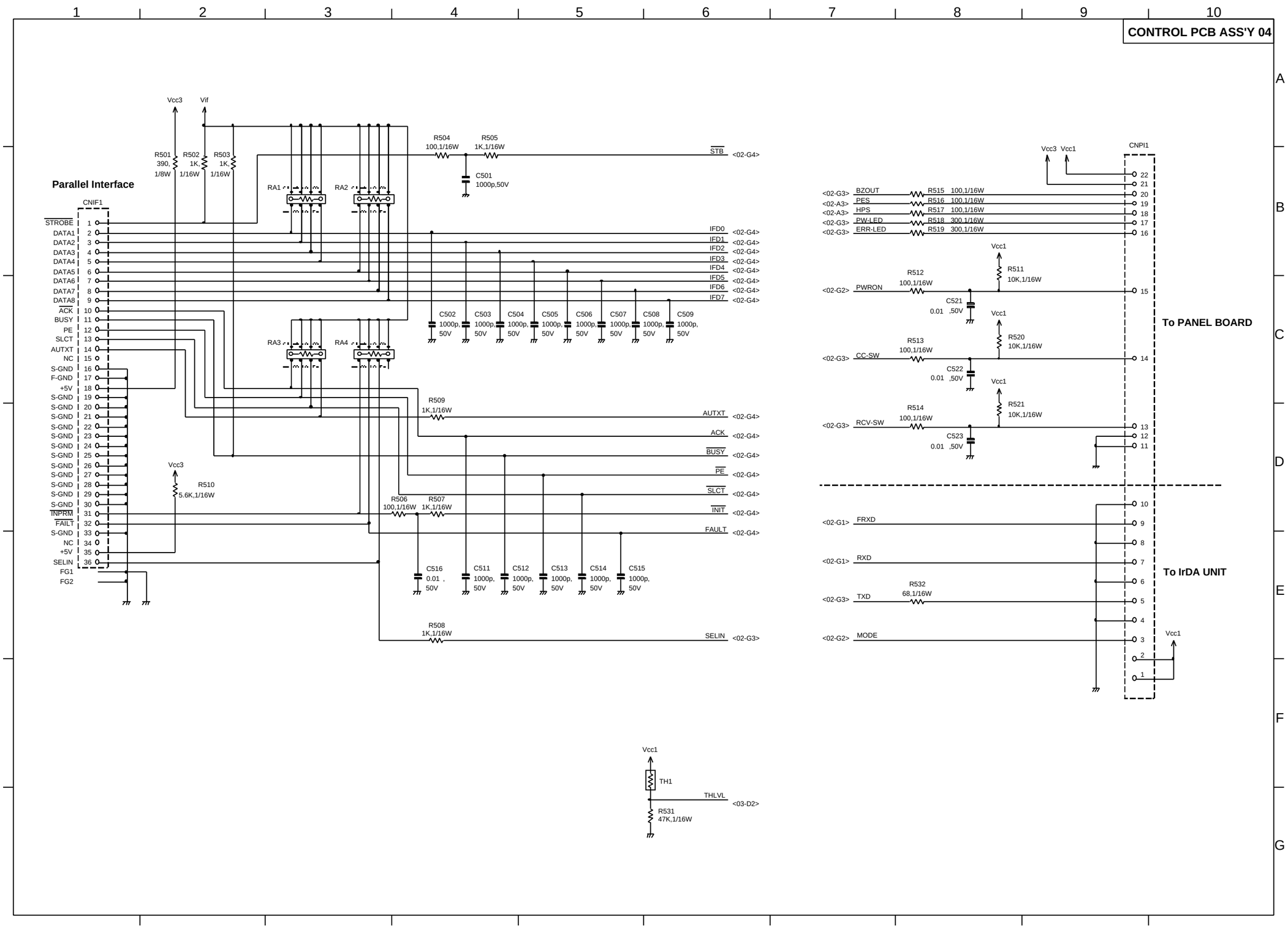
Service parts other than the above are common for BJC-85 and BJ M70.
See the BJC-85 and BJ M70 Parts Catalog for details.

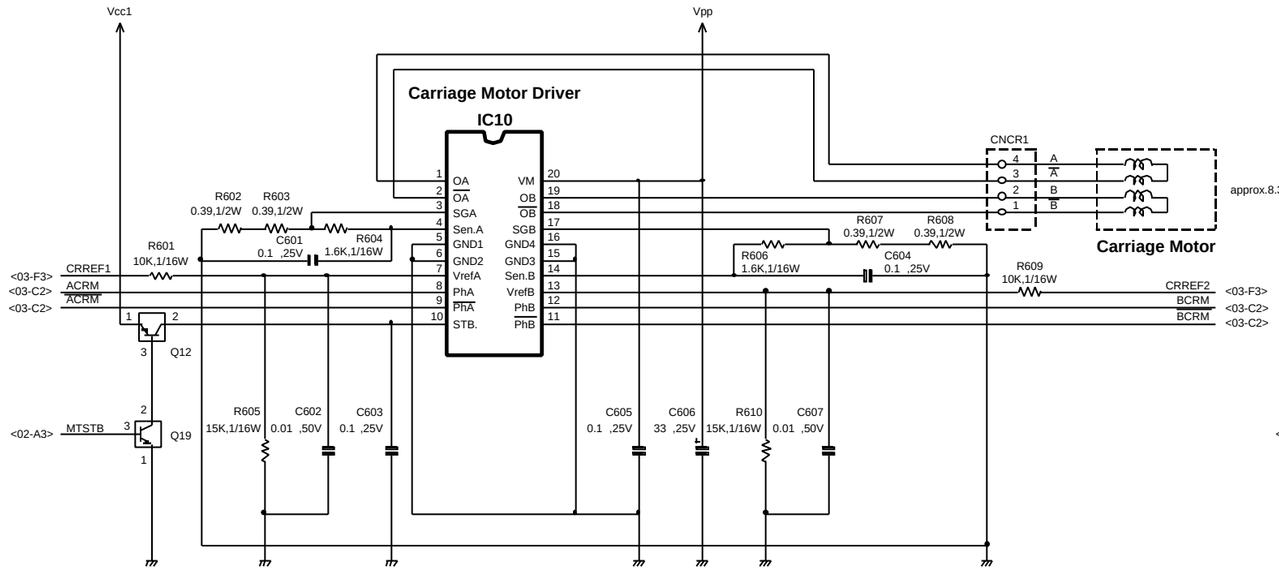
8. CIRCUIT DIAGRAM (Common for BJC-85 and BJ M70)




CONTROL PCB ASS'Y 02
ASIC
IC3
UPD82662GM-001-JEU
FB10 BLM11B221SD
FB201 BK1608LM182
FB202 BK1608LM182
SXOUT
D15~0
A23~0
HCONT
HCLK
HDATA
HLAT
BENB3
BENB2
BENB1
ODDENB
EVENB
HENBC
HENBB
HENBA
HENBD
HRES
MD15~0
MA9~0
R304 100,1/16W
C314 10p,50V
R305 1MA, 1/16W
X4
C315 10p,50V
C38 0.01 ,50V
C15 0.01 ,50V
C10 0.01 , 50V
C9 0.01 , 50V
C35 0.01 , 50V
C36 0.01 , 50V
C11 0.01 ,50V
C22 0.01 , 50V
C39 0.01 , 50V
C40 0.01 , 50V
C306 0.01 ,50V
C302 0.01 , 50V
C14 0.01 50V
C20 0.01 , 50V
C311 SPEC/NOPART
C37 3p,50V
C312 1000p, 50V
X3 CX-16F 48MHz
R302 200,1/16W
R303 1MA,1/16W
C21 100p,50V
C304 0.01 ,50V
R310 47K,1/16W
R309 47K,1/16W
PLUG
PULUP
USBD+
USBD-
UW
RAS
LCAS
UCAS
OE
V3-ON
RESET
FPWRON
FRXD
RXD
RD
WR
HWR
CP3
CP4
CP5
CP6
CP8
CP9
VH
C318 1 ,50V
CNH1
R306 2.7K,1/16W
R307 5.6K1/4
Q16
Q2
R327 330K,1/16W
R308 1K,1/16W
C316 1000p,50V
R311 100,1/16W
R312 100,1/16W
R313 100,1/16W
R314 100,1/16W
R315 100,1/16W
R316 100,1/16W
R317 100,1/16W
R318 100,1/16W
R319 100,1/16W
R320 100,1/16W
R321 100,1/16W
R322 100,1/16W
R323 100,1/16W
R324 100,1/16W
R325 100,1/16W
R326 100,1/16W
R329 10K,1/16W
R328 10K,1/16W
DA1 HZM6.8FA
DA2 HZM6.8FA
DA3 HZM6.8FA
DA4 HZM6.8FA
DA5 HZM6.8FA
To BJ cartrige
R333 470K, 1/10W
R335 100K, 1/16W
R336 100, 1/16W
R338 180K, 1/16W
R331 33K, 1/16W
R332 12K, 1/16W
R334 100K,1/16W
C319 1000p,50V
C320 0.1 ,25V
R337 7.5K, 1/16W
R339 1K,1/16W
IC13
IC13
HDIS
Vcc1
Vcc2
3Vcc
VH


CONTROL PCB ASS'Y 03
CPU
IC6
DRAM
IC4
CONTROL/CG ROM
IC5
ICS5 (Not mounted)
P65/_REFOUT
P70/PG00
P71/PG01
P72/PG02
P73/PG03
P74/PG10
P75/PG11
P76/PG12
P77/PG13
NMI
P80/TXD0
P81/RXD0
P82/_CTS0/SCLK0
P83/TXD1
P84/RXD1
P85/SCLK1
AGND
VREF
VCC1
P90/AN0
P91/AN1
P92/AN2
P93/AN3
AM8/_16
CLK
A12
A13
A14
A15
P20/A16
P21/A17
P22/A18
P23/A19
P24/A20
P25/A21
P26/A22
P27/A23
VCC3
GND3
GND2
P17/D15
P16/D14
P15/D13
P14/D12
P13/D11
P12/D10
P11/D9
P10/D8
D7
D6
Vcc1
C25 0.01 , 50V
C26 0.01 , 50V
C27 0.01 , 50V
C24 0.01 , 50V
C34 0.01 , 50V
C401 0.01 , 50V
C402 0.01 , 50V
C403 0.01 , 50V
C404 0.01 ,50V
R352 10K, 1/16W
R351 10K, 1/16W
R13 300,1/16W
C23 100p, 50V
C32 100p, 50V
C30 100p, 50V
C33 100p, 50V
C31 SPEC/ NOPART
ACRM
BCRM
ACRM
BCRM
ALFM
BLFM
ALFM
BLFM
FPWRON
TOPC
IDO
ID1
E-DO
DCLVL
HDIS
HRANK
THLVL
SXOUT
A20~1
D15~0
MD15~0
MA9~0
A23~0
UW
RAS
LCAS
UCAS
OE
CE1
BYTE
RESET
WE
RY/_BY
NC1
NC2
NC3
NC4


CONTROL PCB ASS'Y 04
Parallel Interface
CNIF1
STROBE 1
DATA1 2
DATA2 3
DATA3 4
DATA4 5
DATA5 6
DATA6 7
DATA7 8
DATA8 9
ACK 10
BUSY 11
PE 12
SLCT 13
AUTXT 14
NC 15
S-GND 16
F-GND 17
+5V 18
S-GND 19
S-GND 20
S-GND 21
S-GND 22
S-GND 23
S-GND 24
S-GND 25
S-GND 26
S-GND 27
S-GND 28
S-GND 29
S-GND 30
INPRM 31
FAILT 32
S-GND 33
NC 34
+5V 35
SELIN 36
FG1
FG2
Vcc3
Vif
R501 390, 1/8W
R502 1K 1/16W
R503 1K, 1/16W
RA1
RA2
RA3
RA4
R504 100,1/16W
R505 1K,1/16W
C501 1000p,50V
STB <02-G4>
IFD0 <02-G4>
IFD1 <02-G4>
IFD2 <02-G4>
IFD3 <02-G4>
IFD4 <02-G4>
IFD5 <02-G4>
IFD6 <02-G4>
IFD7 <02-G4>
C502 1000p, 50V
C503 1000p, 50V
C504 1000p, 50V
C505 1000p, 50V
C506 1000p, 50V
C507 1000p, 50V
C508 1000p, 50V
C509 1000p, 50V
R509 1K,1/16W
AUTXT <02-G4>
ACK <02-G4>
BUSY <02-G4>
PE <02-G4>
SLCT <02-G4>
INIT <02-G4>
FAULT <02-G4>
R506 100,1/16W
R507 1K,1/16W
C516 0.01 , 50V
C511 1000p, 50V
C512 1000p, 50V
C513 1000p, 50V
C514 1000p, 50V
C515 1000p, 50V
R508 1K,1/16W
SELIN <02-G3>
R510 5.6K,1/16W
CNPI1
Vcc3 Vcc1
<02-G3> BZOUT R515 100,1/16W 20
<02-A3> PES R516 100,1/16W 19
<02-A3> HPS R517 100,1/16W 18
<02-G3> PW-LED R518 300,1/16W 17
<02-G3> ERR-LED R519 300,1/16W 16
Vcc1
R512 100,1/16W
R511 10K,1/16W
<02-G2> PWRON 15
C521 0.01 ,50V
R513 100,1/16W
R520 10K,1/16W
<02-G3> CC-SW 14
C522 0.01 ,50V
R514 100,1/16W
R521 10K,1/16W
<02-G3> RCV-SW 13
C523 0.01 ,50V
To PANEL BOARD
<02-G1> FRXD 9
<02-G1> RXD 7
R532 68,1/16W
<02-G3> TXD 5
<02-G2> MODE 3
To IrDA UNIT
Vcc1
TH1
THLVL <03-D2>
R531 47K,1/16W


Carriage Motor Driver
IC10
Vcc1
Vpp
R601 10K,1/16W
R602 0.39,1/2W
R603 0.39,1/2W
C601 0.1 ,25V
R604 1.6K,1/16W
R605 15K,1/16W
C602 0.01 ,50V
C603 0.1 ,25V
R606 1.6K,1/16W
R607 0.39,1/2W
R608 0.39,1/2W
C604 0.1 ,25V
R609 10K,1/16W
C605 0.1 ,25V
C606 33 ,25V
R610 15K,1/16W
C607 0.01 ,50V
CRREF1
ACRM
ACRM
MTSTB
Q12
Q19
OA
OA
SGA
Sen.A
GND1
GND2
VrefA
PhA
PhA
STB.
VM
OB
OB
SGB
GND4
GND3
Sen.B
VrefB
PhB
PhB
CNCR1
A
A
B
B
approx.8.3Ω/phase
Carriage Motor
CRREF2
BCRM
BCRM
<03-F3>
<03-C2>
<03-C2>
<02-A3>
Timer IC
IC12
X2
T-OE
tpout
xout
xin
vss
vdd
sio
sck
cs
D5
BATT1
R612 10K,1/16W
EEPROM(2K)
IC9
NC1
Vcc
CS
SK
NC2
GND
DO
DI
E-OE
TE-CLK
TE-DIO
R613 5.6K,1/16W
R609 0.01 ,50V
R614 10K,1/16W
E-DO
CP2
CP1
<03-F4>
<03-D2>
Paper Feed Motor Driver
IC11
VH
ZD4
WHEAT
MCHE1
MCHE0
ALFM
ALFM
BLFM
BLFM
LF-PRT
I1
I2
I3
I4
I5
I6
I7
GND
O1
O2
O3
O4
O5
O6
O7
COM
W-HT
MCH1
MCH0
<02-C7>
<02-B7>
<02-B7>
<01-D10>
C608 1 ,50V
D6
R611 0.68,1/2W
CNLF1
approx.69.5Ω/phase
Paper Feed Motor
USB Interface
3VCC
CNUS1
PLUG
PULLUP
Q1
R5 47K,1/16W
R11 47K, 1/16W
R9 10K,1/16W
DA6 HZM6.8FA
USBD-
USBD+
R7 24,1/16W
R6 1.5K,1/16W
R8 24,1/16W
PWR
GND
D-
D+